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Policy Brief

Regenerative Agriculture and Climate Change: What does the UK evidence tell us?

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Introduction

Regenerative agriculture is increasingly promoted as a way to reduce agricultural greenhouse gas emissions and support the UK's Net Zero ambitions. However, evidence from global studies may not be directly applicable to the UK because impacts are highly dependent on local soils, farming systems and climatic and environmental conditions.

To assess the strength of the UK evidence base, a PRISMA-ScR scoping review was conducted to identify UK peer-reviewed field studies measuring the impacts of regenerative agriculture practices on greenhouse gas emissions and carbon sequestration.

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Key findings

The empirical evidence for the impacts of regenerative agriculture practices on net greenhouse gas balances in the UK is **inadequate for robustly informing policy or practice**.

Only **106 studies** empirically measured the direct greenhouse gas emissions or carbon sequestration of a range of different regenerative agriculture practices.

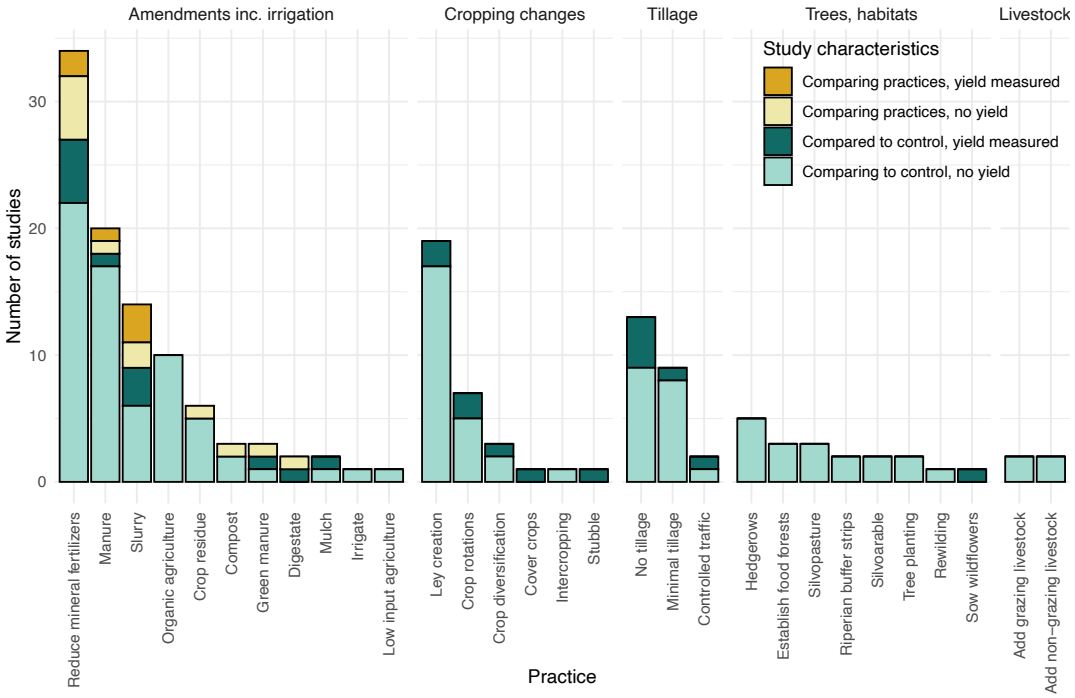
Entire areas of regenerative agriculture activity had **little-to-no empirical evidence**.

The majority of studies were carried out in England, meaning that data available to support decisions for the specific farming systems, soil types, and climates in Scotland, Wales and Northern Ireland is limited.

Only 21% of the studies considered yields alongside net greenhouse gas balances reducing stakeholders' ability to assess overall impacts.

Comprehensive assessment of the net greenhouse gas balances is precluded because data are only available for a limited range of greenhouse gas or carbon responses.

Figure 1. Number of studies found for each regenerative agriculture practice, split by the type of comparison (control vs. another regenerative agriculture practice) and the inclusion or not of yield data.



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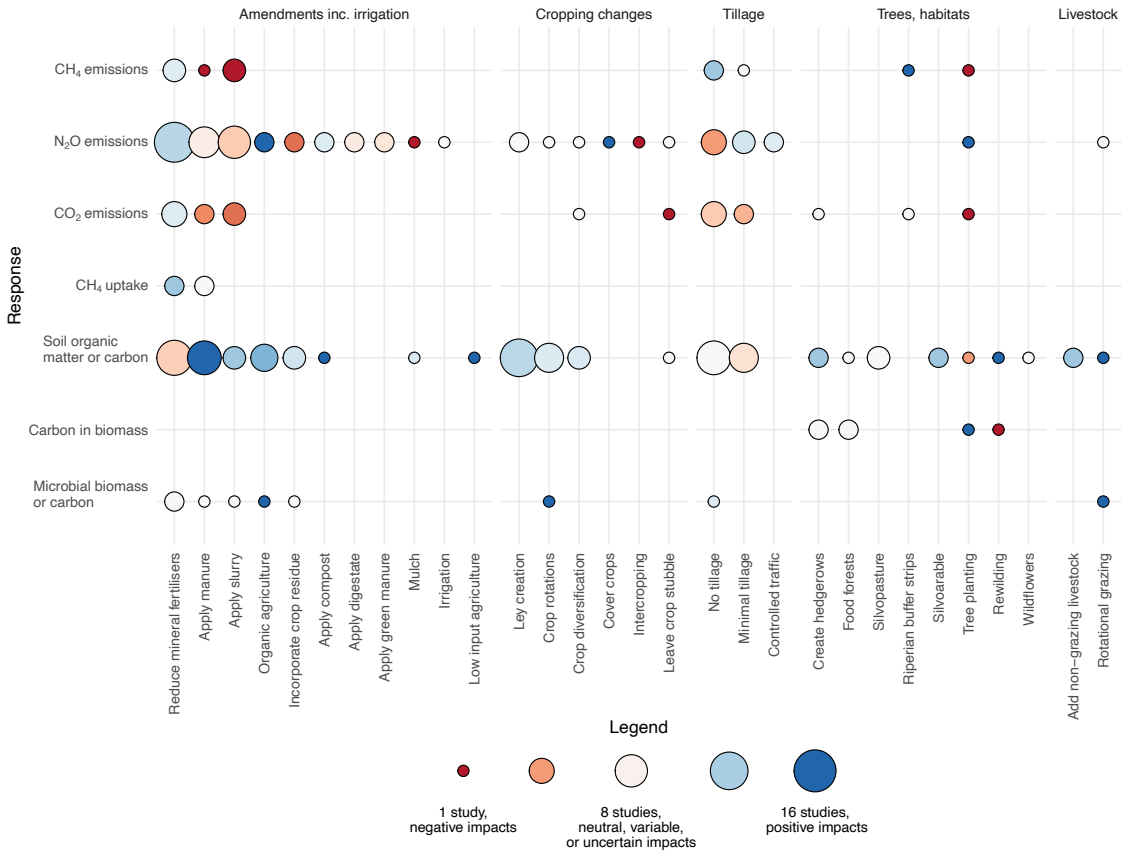

Figure 2. Number of studies found for each GHG/carbon response type and each regenerative agriculture practice. The size of the bubble indicates the number of studies (with a maximum of 16), while the colour provides a qualitative assessment of the direction of impacts. The direction of impact refers to effects on Net Zero ambitions.

Conclusions

The scoping review found remarkably little evidence for the impacts of regenerative agriculture practices on net greenhouse gas balances in the UK, given the interest from a range of actors.

Considerable evidence needs to be generated rapidly to ensure that the most effective practices, either regenerative agriculture or other approaches, are promoted in appropriate locations.

Policy Recommendations:

1. **Increase investment in long-term UK field trials** measuring multiple greenhouse gases, soil carbon, yields and wider biodiversity and environmental outcomes.
2. **Target research gaps** in agroforestry, hedgerows, grazing systems, cover crops and other practices already promoted in policy.
3. **Improve data sharing and knowledge exchange** between researchers, farmers and industry.

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